



Registered Data Sheet Perforating System Evaluation, API RP 19B Section 1

API Form 19B-Section 1 Conforms to All Requirements of Section 1 Special Test - See Remarks/Exceptions below

Service Company Oiltech Services Pte. Ltd. Explosive weight 21 gm, HMX powder, Case Material Steel

Gun OD & Trade Name 3-3/8" 6 SPF 60° Phase Carrier Max Temp, °F 400 1 hr 3 hr 24 hr 100 hr 200 hr

Charge Name HSD 34B 21g HMX DP / PPG 21g HMX DP Maximum Pressure Rating 20,000 psi, Carrier Material Steel

Manufacturer Charge Part No. OT60266 / OT60310 Date of Manufacture 13 Dec. 2011 Shot Density Tested 6 Shots/ft _____

Gun Type TCP, Wireline, PPG, Retrievable Tubular Carrier with scallop Recommended Minimum ID for Running See Remarks in.

Phasing Tested 60 degrees, Firing Order: Top down Bottom up Available Firing Mode: X Selective Simultaneous

Debris Description N/A Debris Weight N/A gm/charge, Debris N/A in³/charge

Remarks/Exceptions per Section 1.11 Maximum carrier diameter after shooting in liquid is 3.51"

Casing Data 4-1/2" OD, Weight 11.6 lb/ft, API Grade, L-80 Date of Section 1 Test 18 January 2012

Target Data 58" OD, Amount of Cement 4,206 lb, Amount of Sand 8,410 lb, Amount of Water 2,191 lb.

Date of Compressive Strength Test 17 January 2012 Briquette Compressive Strength 6,268 psi, Age of Target 30 days

Shot No.	No 1	No 2	No 3	No 4	No 5	No 6	No 7	No 8	No 9	No 10	No 11
Clearance, in.	0.00	0.14	0.45	0.63	0.45	0.14	0.00	0.14	0.45	0.63	0.45
Casing Hole Diameter, Short Axis, in	0.42	0.43	0.40	0.40	0.40	0.41	0.40	0.41	0.40	0.42	0.42
Casing Hole Diameter, Long Axis, in	0.45	0.45	0.42	0.42	0.43	0.42	0.43	0.43	0.42	0.45	0.44
Average Casing Hole Diameter, in.	0.43	0.44	0.41	0.41	0.41	0.41	0.42	0.42	0.41	0.43	0.43
Total Depth, in.	22.75	21.25	22.25	21.25	20.25	20.25	21.75	22.25	22.25	21.25	22.25
Burr Height, in.	0.08	0.06	0.08	0.07	0.04	0.05	0.06	0.05	0.05	0.04	0.06

Shot No.	No 12	No 13	No 14	No 15	No 16	No 17	No 18	No 19	No 20	No 21	No 22	Average
Clearance, in.	0.14	0.00	0.14	0.45	0.63	0.45	0.14	0.00	0.14	0.45		XXXXXX
Casing Hole Diameter, Short Axis, in	0.41	0.42	0.42	0.42	0.40	0.41	0.42	0.41	0.41	0.42		0.41
Casing Hole Diameter, Long Axis, in	0.43	0.44	0.45	0.43	0.43	0.44	0.45	0.43	0.43	0.44		0.43
Average Casing Hole Diameter, in.	0.42	0.43	0.43	0.41	0.42	0.43	0.44	0.42	0.42	0.43		0.42
Total Depth, in.	22.25	20.25	20.25	21.25	22.25	21.75	19.25	20.25	19.75	21.75		21.28
Burr Height, in.	0.06	0.04	0.03	0.04	0.05	0.04	0.05	0.07	0.04	0.07		0.06

Remarks The average penetration with compressive strength of 5,000 psi is 22.63" (Normalized). This charge can also be used in 5" PPG type carrier.

Manufacturer's Certification

Type of Certification: _____ Self Third Party

I certify that these tests were made according to the procedures as outlined in API 19B: Recommended Practice for Evaluation of Well Perforators, Second Edition, September 2006. All of the equipment used in these tests, such as the guns, jet charges detonator cord, etc., was standard equipment with our company for the use in the gun being tested and was not changed in any manner for the test. Furthermore, the equipment was chosen at random from stock and therefore will be substantially the same as the equipment that would be furnished to perforate a well for any operator. API neither endorses these tests nor recommends the use of the perforator system described.

CERTIFIED BY John M. Black Director 19 Jan 2012 Oiltech Services Pte Ltd 25 Pandan Crescent, TIC Tech Centre #06-12, Singapore 128477
 _____ RECERTIFIED _____ (Company) _____ (Title) _____ (Date) _____ (Company) _____ (Address)

Name of test as it should appear on website: 3-3/8", HSD 34B 21g HMX DP, 60° Phasing, 6 SPF

Name of test as it appears on application and application date: Charge: HSD 34B 21g HMX DP, Gun: 3-3/8", 6 SPF, 60° Phase Carrier